possesses a PFGGGPRLCAG sequence in which arginine (R) is substituted for proline (P). However, domain A of DWF4, AGHETS, fits the consensus of domain A of group A. These characteristics suggest that DWF4 is a monooxygenase, similar to P450s of group A, that utilizes molecular oxygen as a source of the hydroxyl group, but it mediates some reaction(s) that are not necessarily specific for plants, for instance, steroid hormone biosynthesis, which is a critical event for animals. In fact, the similarity of DWF4 to the rat testosterone 6β-hydroxylase (34%; GenBank accession number 631895) or glucocorticoid-inducible hydroxylase (31%; Molowa et al. 1986; GenBank accession number M13785) supports this idea. Further, the similarity that DWF4 shares with CYP90A and CYP85, 66 and 59%, respectively, is additional proof that it is involved in plant steroid biosynthesis (Bishop et al. 1996 ; Szekeres et al. 1996). --

In the Claims:

Please cancel claims 1-4, 11, 13, 18, and 46-57 without prejudice or disclaimer.

Please amend claims 5, 6, 20-22, 24, 25, 28, 29, and 34 as follows.

5. (Amended) An isolated *dwf4* polynucleotide comprising (i) a sequence having at least 90% identity to SEQ ID NO:1, complement and reverse complement thereof or (ii) a sequence comprising at least 15 contiguous nucleotides of SEQ ID NO:1, complement and reverse complement thereof.

6. (Amended) The isolated *dwf4* polynucleotide of claim 5 having at least 90% identity to the DWF4 polypeptide-coding region of SEQ ID NO:1, complement and reverse complement thereof.

A6

12. (Amended) A recombinant vector comprising (i) the polynucleotide of claim 6; and (ii) control elements operably linked to said polynucleotide whereby a coding sequence within said polynucleotide can be transcribed and translated in a host cell.

A7

20. (Amended) The isolated polynucleotide of claim 5, wherein the polynucleotide includes a *dwf4* control element comprising a polynucleotide selected from the group consisting of (i) a sequence having at least 90% identity to nucleotides 1 to 3202 of SEQ ID NO:1; (ii) a fragment of (i) which includes a *dwf4* control element; and (iii) complement and reverse complement of (i) or (ii).

21. (Amended) The isolated polynucleotide of claim 5, wherein the polynucleotide includes a *dwf4* control element comprising a polynucleotide selected from the group consisting of (i) a sequence having at least 90% identity to nucleotides 6111 to 6468 corresponding to the 3' UTR of SEQ ID NO:1; (ii) a fragment of (i) which includes a *dwf4* 3' UTR; and (iii) complement and reverse complement of (i) or (ii).

22. (Amended) The isolated polynucleotide of claim 5, wherein the polynucleotide includes a *dwf4* control element comprising a polynucleotide selected from the group consisting of (i) a sequence having at least 90% identity to the sequences corresponding to the introns of SEQ ID NO:1; (ii) a fragment of (i) which includes a *dwf4* intron; and (iii) complement and reverse complement of (i) and (ii).

A8

24. (Amended) A recombinant vector comprising an isolated *dwf4* polynucleotide comprising (i) a sequence having at least 90% identity to SEQ ID NO:1, complement and reverse complement thereof or (ii) a sequence comprising at least 15 contiguous nucleotides of SEQ ID NO:1, complement and reverse complement thereof, wherein the polynucleotide includes a *dwf4* control element comprising a polynucleotide selected from the group consisting of (i) a sequence having at least 90% identity to

A8 cancel

nucleotides 1 to 3202 of SEQ ID NO:1; (ii) a fragment of (i) which includes a *dwf4* control element; and (iii) complement and reverse complement of (i) or (ii).

25. (Amended) A host cell transformed with the recombinant vector of claim 24, wherein the host cell is a plant cell or a bacterial cell.

A9

28. (Amended) A method for producing a transgenic plant having an altered phenotype relative to a wild-type plant comprising the following steps:

introducing at least one polynucleotide of claim 5 into a plant cell; and

producing a transgenic plant from the plant cell, said transgenic plant having an altered phenotype relative to the wild-type plant.

29. (Amended) The method of claim 28, wherein the phenotype is selected from the group consisting of altered cell length, altered periods of flowering, altered branching, altered seed production, altered leaf size, elongated hypocotyls, altered plant height, altered heme-thiolate enzyme activity, altered monooxygenase activity, altered 22α-hydroxylase activity, altered resistance to plant pathogens, altered growth at low temperatures, altered growth in dark conditions, and altered sterol composition.

A10

34. (Amended) The method of claim 28, wherein the polynucleotide is operably linked to a promoter selected from the group consisting of a tissue-specific promoter, an inducible promoter and a constitutive promoter.

Introductory Comments

Claims 1-57 were pending. Claims 52-57 were withdrawn as being drawn to a nonelected invention. The Examiner has rejected claims 1-51.

The specification was objected to for containing embedded hyperlinks, for not having sequence identifiers in Figure 3, for not having a light gray bar indicating

the coding region in Figure 10, and for stating that Figure 6 showed a phylogenetic analysis.

Claims 3 and 7 were objected to as being duplicate claims, and claim 22 was objected to for misspelling of "intron."

The Examiner has rejected claims 1-3, 5-7, 9-45, and 49-51 under 35 U.S.C. §112, second paragraph, asserting that the claims are indefinite for various reasons.

The Examiner has rejected claims 1, 2, 4-6, and 8-51 under 35 U.S.C. §112, first paragraph, asserting that the specification does not reasonably provide written description for the claims.

The Examiner has rejected claims 1-45, and 49-51 under 35 U.S.C. §112, first paragraph, asserting that the specification does not enable the claims.

The Examiner has rejected claims 46-48 under 35 U.S.C. §112, first paragraph, asserting that the specification does not enable for the claims.

The Examiner has rejected claims 1-14 and 20-25 under 35 U.S.C. §102(a) or 102(b), asserting that the claims are anticipated by Choe *et al.* (1998) Plant Cell 10: 231-244.

The Examiner has rejected claims 1-16, 18-29, 31-35, 38-45, and 49-51 under 35 U.S.C. §103(a), asserting that the claims are unpatentable over Choe *et al.*, in view of applicants' alleged admission regarding the state of the prior art.

These rejections are traversed and believed to be overcome for reasons discussed below.

The applicants acknowledge with appreciation the rejoinder of the claims of Groups II and III with the claims of Group I.

Overview of the Amendments

The specification has been amended to remove the embedded hyperlinks, as requested by the Examiner. In addition, the sentence spanning lines 28-30 of page 55 has been amended to refer to Figure 4 instead of Figure 6, and corrects for a typographical error.

Claims 1-4, 11, 13, 18, and 46-57 have been canceled.

Claims 5, 6, 20-22, and 29 have been amended to recite "complement and reverse complement" instead of the plural, as suggested by the Examiner.

Claims 5, 6, and 20 have been amended to recite a sequence having at least 90% identity to SEQ ID NO:1. The amendment finds support at page 18, lines 9-15.

Claim 5 has been amended to recite a sequence comprising at least 15 contiguous nucleotides of SEQ ID NO:1. The amendment finds support in the claims as originally filed.

Claim 12 has been amended to recite the polynucleotide of claim 6. The amendment finds support in the claims as originally filed.

Claim 22 has been amended to recite "wherein" instead of "where in" and to recite "intron" instead of "intro." The amendment corrects for typographical errors.

Claim 24 has been rewritten in independent form and includes the elements of claim 5, from which it previously depended. The amendment thus finds support in the claims as originally filed.

Claim 25 has been amended to recite that the host cell is a plant cell or a bacterial cell, as suggested by the Examiner.

Claim 28 has been amended to recite "a" instead of "the" thereby correcting for antecedent basis.

Claim 29 has been amended to depend from claim 28. The amendment corrects for an oversight. In addition, the claim has been amended to delete the recitation regarding regulation of brassinosteriods, gibberellic acid, cytokinins, and auxins.

Claim 34 has been amended to properly recite the Markush group.

No new matter has been added by way of these amendments. Further, the amendments are made solely to expedite prosecution, for reasons unrelated to patentability, and do not constitute an acknowledgment that the Examiners position is correct. In view of the foregoing amendments and following remarks, Applicants submit that the claims are in condition for allowance.